UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,985	09/29/2006	Taichi Majima	0670-7089	3285

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EXAMINER
GUARINO, RAHEL

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2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _29 September 2006_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-10_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,9 and 10_ is/are rejected.

7)☒ Claim(s) _2-8_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _29 September 2006_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided**. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. **It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.**

2.   The abstract of the disclosure has been objected because it contains the words

"**means**"

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Minde et al. US 5,432,778 in view of Martensson et al. US 6,519,740

Re claim 1, Minde discloses a communication quality judging device *(fig.2)* comprising:

a symbol judging means for obtaining a baseband signal representative of a sequence of multilevel symbols *(baseband signal obtained by the demodulator, col. 4 lines 8-11)* and judging the symbol represented by the baseband signal *(the neural net estimates the frames of fig.2 using parameters s_m (signal level),s_j(soft information) and S_b (bit error rate);col. 5 lines 1-10)*;

and a communication quality judging *(channel simulator)* means for judging communication quality of a transmission channel over which the baseband signal has been transmitted *(fig.4; channel simulator access the radio channel due to fading, attenuation; col. 6 lines 57-60)*, based on content of the symbol judged by the symbol judging means *(based on the parameters s_m (signal level),s_j(soft information) and S_b (bit error rate; col. 7 lines 20-29)*,

wherein at least a portion of a bit string is distinguished as a protected portion *(fig.1; class 1-a are protected bits which are more sensitive to transmission errors;*

col.1 lines 45-52)), the bit string constituting data to be transmitted represented by the

sequence of symbols *(fig.1; frame of 260 bits that is received by the receiver of fig.2 col.*

4 lines 3-7), and at least a portion of the symbol that belongs to the sequence of

symbols contains a bit belonging to the protected portion *(fig.1 shows 53 bits class 1a)*

and a redundant bit having a predetermined value (fig.1 shows *3 bits of class 1a are*

redundant parity bits; *col. 3 lines 42-43 and col. 1 lines 52-54. class 1b (unprotected*

blocks) also contained 4-bit redundant parity bits; col. 3 lines 45-59); does not teach

identifying the number of redundant bits having the predetermined value or the number

of redundant bits missing the predetermined value among the redundant bits contained

in the symbol that contains a bit belonging to the protected portion, and judges the

communication quality of the transmission channel based on the identified result.

In the same field of endeavor, However, Martensson discloses identifying the

number of redundant bits having the predetermined value *(0 or 1)* or the number of

redundant bits missing the predetermined value among the redundant bits contained in

the symbol that contains a bit belonging to the protected portion *(col. 3 lines 66-col. 4*

lines 6), and judges the communication quality of the transmission channel based on

the identified result (col. 7 lines 21-27)

Therefore, taking the combined teaching of Minde and Martensson as a whole

would have been rendered obvious to one skilled in the art to modify Minde to identify

the number of redundant bits having the predetermined value or the number of

redundant bits missing the predetermined value among the redundant bits contained in

the symbol that contains a bit belonging to the protected portion, and judges the

communication quality of the transmission channel based on the identified result for the

benefit of improving the SNR performance of approximate of 4.5dB *(col. 2 lines 13-16,*

Martensson).

Re claim 9, <u>Minde</u> discloses a communication quality judging method *(fig.2)* the

method comprising:

obtaining a baseband signal representative of a sequence of multilevel symbols

(baseband signal obtained by the demodulator, col. 4 lines 8-11) and

judging *(channel simulator)* means for judging communication quality of a

transmission channel over which the baseband signal has been transmitted *(fig.4;*

channel simulator access the radio channel due to fading, attenuation; col. 6 lines 57-

60), based on content of the symbol judged by the symbol judging means *(based on the*

parameters s_m (signal level),s_j(soft information) and S_b (bit error rate; col. 7 lines 20-29),

wherein at least a portion of a bit string is distinguished as a protected portion

(fig.1; class 1-a are protected bits which are more sensitive to transmission errors;

col.1 lines 45-52)), the bit string constituting data to be transmitted represented by the

sequence of symbols *(fig.1; frame of 260 bits that is received by the receiver of fig.2 col.*

4 lines 3-7), and at least a portion of the symbol that belongs to the sequence of

symbols contains a bit belonging to the protected portion *(fig.1 shows 53 bits class 1a)*

and a redundant bit having a predetermined value (fig.1 shows *3 bits of class 1a are*

redundant parity bits; *col. 3 lines 42-43 and col. 1 lines 52-54. class 1b (unprotected*

blocks) also contained 4-bit redundant parity bits; col. 3 lines 45-59); does not teach

identifying the number of redundant bits having the predetermined value or the number

of redundant bits missing the predetermined value among the redundant bits contained

in the symbol that contains a bit belonging to the protected portion, and judges the

communication quality of the transmission channel based on the identified result.

In the same field of endeavor, However, Martensson discloses identifying the

number of redundant bits having the predetermined value *(0 or 1)* or the number of

redundant bits missing the predetermined value among the redundant bits contained in

the symbol that contains a bit belonging to the protected portion (*col. 3 lines 66-col. 4

lines 6*), and judges the communication quality of the transmission channel based on

the identified result (col. 7 lines 21-27)

Therefore, taking the combined teaching of Minde and Martensson as a whole

would have been rendered obvious to one skilled in the art to modify Minde to identify

the number of redundant bits having the predetermined value or the number of

redundant bits missing the predetermined value among the redundant bits contained in

the symbol that contains a bit belonging to the protected portion, and judges the

communication quality of the transmission channel based on the identified result for the

benefit of improving the SNR performance of approximate of 4.5dB *(col. 2 lines 13-16,

Martensson)*

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minde et

al. US 5,432,778 in view of Martensson et al. US 6,519,740 in further view of Burkert et

al. US 7,168,031

Re claim 10, <u>Minde</u> discloses the steps of (*fig.2*);

obtaining (*demodulator*) a baseband signal representative of a sequence of multilevel

symbols and judging the symbol represented by the baseband signal (*baseband signal*

obtained by the demodulator, col. 4 lines 8-11);

judging (*channel simulator*) means for judging communication quality of a

transmission channel over which the baseband signal has been transmitted (*fig.4;*

channel simulator access the radio channel due to fading, attenuation; col. 6 lines 57-

60), based on content of the symbol judged by the symbol judging means (*based on the*

parameters s_m *(signal level),*s_j*(soft information) and* S_b *(bit error rate; col. 7 lines 20-29),*

wherein at least a portion of a bit string is distinguished as a protected portion

(*fig.1; class 1-a are protected bits which are more sensitive to transmission errors;*

col.1 lines 45-52)), the bit string constituting data to be transmitted represented by the

sequence of symbols (*fig.1; frame of 260 bits that is received by the receiver of fig.2 col.*

4 lines 3-7), and at least a portion of the symbol that belongs to the sequence of

symbols contains a bit belonging to the protected portion (*fig.1 shows 53 bits class 1a*)

and a redundant bit having a predetermined value (fig.1 shows *3 bits of class 1a are*

redundant parity bits; *col. 3 lines 42-43 and col. 1 lines 52-54. class 1b (unprotected*

blocks) also contained 4-bit redundant parity bits; col. 3 lines 45-59); does not teach

identifying the number of redundant bits having the predetermined value or the number

of redundant bits missing the predetermined value among the redundant bits contained

in the symbol that contains a bit belonging to the protected portion, and judges the

communication quality of the transmission channel based on the identified result.

In the same field of endeavor, However, Martensson discloses identifying the number of redundant bits having the predetermined value *(0 or 1)* or the number of redundant bits missing the predetermined value among the redundant bits contained in the symbol that contains a bit belonging to the protected portion (*col. 3 lines 66-col. 4 lines 6*), and judges the communication quality of the transmission channel based on the identified result (col. 7 lines 21-27)

The combined teaching of <u>Minde and Martensson</u> does not teach a computer program.

However, <u>Burkert</u> discloses computer program *(col. 4 lines 13-15)*

Therefore, taking the combined teaching of <u>Minde and Martensson</u> as a whole would have been rendered obvious to one skilled in the art to modify <u>Minde</u> to identify the number of redundant bits having the predetermined value or the number of redundant bits missing the predetermined value among the redundant bits contained in the symbol that contains a bit belonging to the protected portion, and judges the communication quality of the transmission channel based on the identified result for the benefit of improving the SNR performance of approximate of 4.5dB *(col. 2 lines 13-16, Martensson)*

Therefore, taking the combined teaching of <u>Minde Martensson and Burkert</u> as a whole would have been rendered obvious to one skilled in the art to modify <u>Minde and Martensson</u> to utilize <u>Burkert</u>'s a computer program for the benefit of better of reducing the amount of time of processing.

Allowable Subject Matter

6.   Claims 2-8 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to RAHEL GUARINO whose telephone number is
(571)270-1198. The examiner can normally be reached on M-F (9-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, David Payne can be reached on 571-272-3024. The fax phone number for
the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a
USPTO Customer Service Representative or access to the automated information
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rahel Guarino/

Examiner, Art Unit 2611

/David C. Payne/
Supervisory Patent Examiner, Art Unit 2611